

IN THE CLAIMS:

- 1 1. (Currently Amended) A method of fabricating a holographic mask comprising the
2 steps of:
- 3 a) providing an illumination source for generating a coherent illumination
4 beam directed along an axis;
- 5 b) providing a non-opaque object mask having substantially planar regions
6 capable of transmitting a portion of said illumination beam as undiffracted
7 reference wavefronts, and having one or more substantially transparent
8 elements for creating overlapping object wavefronts when said
9 illumination beam is incident thereon;
- 10 c) disposing said object mask in said illumination beam;
- 11 d) providing a holographic recording medium in said illumination beam in
12 line optically with said object mask;
- 13 e) illuminating said object mask with said illumination beam, wherein said
14 illumination beam directed along said axis causes thereby causing said
15 object mask to allow undiffracted reference wavefronts to pass
16 therethrough, and wherein said illumination beam directed along said axis
17 causes causing said one or more substantially transparent elements to
18 create object wavefronts which interact with said undiffracted reference
19 wavefronts to create an interference pattern; and
- 20 f) recording said interference pattern in said holographic recording medium.

- 1 2. (Currently Amended) A method of fabricating a holographic mask according to
2 claim 1, wherein said one or more substantially transparent elements are selected
3 from the group of substantially transparent elements consisting of a phase-altering
4 element, a scattering element, a refracting element, and a diffracting element.
- 1 3. (Previously presented) A method of fabricating a holographic mask according to
2 claim 1, wherein said step e) involves scanning said illumination beam over said
3 object mask during said recording of said interference pattern.
4. (Cancel)
- 1 5. (Currently Amended) A method of fabricating a holographic mask according to
2 claim 1, wherein said at least one or more substantially transparent elements
3 comprise an array of substantially transparent elements.

1 6-19. Cancel

2 20. (Currently Amended) A method of fabricating a holographic mask as in one of
3 claims 2, 7, 12 or 17, wherein said one or more substantially transparent elements
4 are phase-altering elements which are indentations in said object mask.

1 21. (Previously presented) A method of fabricating a holographic mask as in one of
2 claims 2, 7, 12 or 17, wherein said one or more said phase-altering elements are
3 islands of transparent material.

1 22. (Withdrawn) A method of fabricating a holographic mask as in one of claims 2, 7,
2 12 or 17, wherein said one or more scattering elements are diffusers.

1 23. (Withdrawn) A method of fabricating a holographic mask as in one of claims 2, 7,
2 12 or 17, wherein said one or more scattering elements has a preferred
3 directionality.

1 24. (Withdrawn) A method of fabricating a holographic mask as in one of claims 2, 7,
2 12 or 17, wherein said one or more refracting elements are lenslets.

1 25. (Withdrawn) A method of fabricating a holographic mask as in one of claims 2, 7,
2 12 or 17, wherein said one or more diffracting elements are gratings.

1 26. (Withdrawn) A method of fabricating a holographic mask as in one of claims 2, 7,
2 12 or 17 wherein said one or more diffracting elements are holograms.

27-69 (Canceled)

- 1 70. (Previously presented) A method as recited in claim 1, wherein said recording step
2 (f) includes recording said interference pattern in said holographic recording
medium without "clipping" or "bottoming out" of the interference pattern.
- 1 71. (Previously presented) A method as recited in claim 70, wherein said recording
2 step (f) includes controlling exposure time, intensity of illumination, and
developing procedure to avoid said "clipping" or said "bottoming out."
- 1 72. (Previously presented) A method as recited in claim 1, further comprising the step
2 of transferring said recording of said interference pattern to a durable substrate to
3 provide a durable holographic mask.
- 1 73. (Previously presented) A method as recited in claim 1, wherein in said providing
2 step (b) said non opaque object mask has a semi-transparent layer with an optical
3 density between 0.1 and 5.0.
- 1 74. (Previously presented) A method as recited in claim 1, wherein in said
2 illuminating step (e) said reference wavefronts and said object wavefronts have a
3 beam intensity ratio between 0.1:1 and 100:1.
- 1 75. (Previously presented) A method as recited in claim 1, wherein said recoding step
2 (f) involves recording said interference pattern in said holographic recording
3 medium so as to create a substantially continuous diffracting region over said
4 holographic recording medium.

1 76. (Previously presented) A method as recited in claim 1, wherein said providing a
2 non-opaque mask step (b) comprises the step of photolithographically defining
3 regions on a substrate and etching said regions to provide indentations, islands,
4 scattering elements, lenslets, or grating elements for providing said substantially
5 transparent elements.

1 77. (Canceled)

2 78. (Previously presented) A method as recited in claim 73, wherein said recording
3 step (g) (f) includes controlling exposure time, intensity of illumination, and
 developing procedure to avoid said "clipping" or said "bottoming out."

1 79-80. (Canceled)

2 81. (Previously presented) A method as recited in claim 76, wherein said recording
3 step (f) includes controlling exposure time, intensity of illumination, and
 developing procedure to avoid said "clipping" or said "bottoming out."

1 82-89. (Canceled)

2 90. (New) A method as recited in claim 72, wherein said recording of said
3 interference pattern overlies said durable substrate and wherein said step of
4 transferring said recording of said interference pattern to a durable substrate
5 involves etching said durable substrate as masked by said overlying recording of
6 said interference pattern.

1 91. (New) A method of fabricating a holographic mask according to claim 73,
2 wherein said semi-transparent layer is chrome.